

**Abstract**

5 The present invention provides a microinjection assembly including a microscope, a microinjection system comprising a micromanipulator, a micropipette and a piezo-electric oscillator, and an obliquely angled macro monitoring unit. The present invention also provides methods of microinjecting the germinal disk of an avian egg, thereby delivering a transgenic nucleus, spermatozoon or isolated nucleic acid to the avian embryo. The avian ovum may be returned to a female bird for hard-shell deposit and laying of the egg for  
10 hatching as a transfected bird.